

IN THE CLAIMS:

1. (Currently Amended) A synthetic aperture ladar system comprising:  
a mode locked laser transmitter;  
a receiver adapted to detect signals transmitted by the laser and reflected by an object;  
means for moving the laser transmitter and receiver, wherein the direction of motion forms a large angle with the direction of the transmitted laser beam; and  
means for processing the detected signals to increase cross-range resolution.
2. (Canceled)
3. (Original) The invention of Claim 1 wherein the laser transmitter includes a laser and means for mode locking the output thereof.
4. (Original) The invention of Claim 3 wherein the laser is an erbium-doped crystal laser.
5. (Original) The invention of Claim 4 wherein the laser is an erbium, ytterbium-doped laser.
6. (Original) The invention of Claim 4 further including means for pumping the laser via an optical fiber.
7. (Original) The invention of Claim 3 wherein the means for mode locking includes a quantum well absorber.
8. (Original) The invention of Claim 3 wherein the means for mode locking includes an acoustic crystal.

9. (Currently Amended) The invention of Claim 1 wherein the ~~signal processor~~ means for processing includes a range de-multiplexer for organizing the signals into range bins.

10. (Currently Amended) The invention of Claim 9 wherein the ~~signal processor~~ means for processing further includes means for extracting a signal representing Doppler frequencies detected for each range bin.

11. (Original) The invention of Claim 10 wherein said means for extracting Doppler frequencies includes means for computing a frequency spectrum associated with each range bin.

12. (Original) The invention of Claim 11 wherein said means for computing a frequency spectrum includes a Fast Fourier Transform.

13. (Original) The invention of Claim 11 wherein said means for extracting Doppler frequencies further includes means for detecting centroids of said frequency spectrums.

14. (Currently Amended) The invention of Claim 10 wherein the ~~signal processor~~ means for processing further includes means for extracting a signal representing intensity of the signal detected for each range bin.

15. (Original) The invention of Claim 1 further including a local oscillator for generating a reference beam.

16. (Original) The invention of Claim 15 wherein said receiver combines said reflected signal with said reference beam.

17 - 18 (Canceled)